

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture
Product name : Custom VOA APPIX Mix
Product code : AL0-130064
Product group : Trade product

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category : Laboratory Use
Industrial/Professional use spec : Industrial
For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Phenova
6390 Joyce Dr. Suite 100
80403 Golden, CO - United States
T 1-866-942-2978 - F 1-866-283-0269
info@phenova.com - www.phenova.com

1.4. Emergency telephone number

Emergency number : ChemTel Assistance (US/Canada) 1-800-255-3924
ChemTel Assistance (International) +1 813-248-0585

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flam. Liq. 2	H225
Acute Tox. 3 (Oral)	H301
Acute Tox. 4 (Dermal)	H312
Acute Tox. 4 (Inhalation)	H332
Skin Sens. 1	H317
Carc. 1B	H350
STOT RE 2	H373
Aquatic Chronic 3	H412
Ozone	

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Carc. Cat. 2; R45
F; R11
Xn; R20/21/22
Xn; R48/20
R43
N; R59
R19
R52/53

Full text of R-phrases: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

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2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



Signal word (CLP) : Danger

Hazardous ingredients : propionitrile; methylmethacrylate; 2-chloro-1,3-butadiene, inhibited; acetonitrile; 1,4-dichloro-2-butene, trans-; ethyl methacrylate; methacrylonitrile; pentachloroethane; tetrahydrofuran

Hazard statements (CLP) :

- H225 - Highly flammable liquid and vapor
- H301 - Toxic if swallowed
- H312+H332 - Harmful in contact with skin or if inhaled
- H317 - May cause an allergic skin reaction
- H350 - May cause cancer
- H373 - May cause damage to organs through prolonged or repeated exposure
- H412 - Harmful to aquatic life with long lasting effects

Precautionary statements (CLP) :

- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
- P233 - Keep container tightly closed
- P260 - Do not breathe dust/fume/gas/mist/vapors/spray
- P270 - Do not eat, drink or smoke when using this product
- P271 - Use only outdoors or in a well-ventilated area
- P273 - Avoid release to the environment
- P280 - Wear protective gloves/protective clothing/eye protection/face protection
- P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
- P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
- P308+P313 - IF exposed or concerned: Get medical advice/attention
- P362+P364 - Take off contaminated clothing and wash it before reuse
- P403+P235 - Store in a well-ventilated place. Keep cool

EUH phrases : EUH059 - Hazardous to the ozone layer
EUH019 - May form explosive peroxides

No labeling applicable

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Methylene Chloride (Component)	(CAS No) 75-09-2 (EC no) 200-838-9 (EC index no) 602-004-00-3	79.34	Carc. 2, H351
1,4-dioxane (Component)	(CAS No) 123-91-1 (EC no) 204-661-8 (EC index no) 603-024-00-5	4	Flam. Liq. 2, H225 Carc. 2, H351 Eye Irrit. 2, H319 STOT SE 3, H335
propionitrile (Component)	(CAS No) 107-12-0 (EC no) 203-464-4	2	Flam. Liq. 2, H225 Acute Tox. 2 (Oral), H300 Acute Tox. 2 (Dermal), H310 Eye Irrit. 2, H319
acetonitrile (Component)	(CAS No) 75-05-8 (EC no) 200-835-2 (EC index no) 608-001-00-3	2	Flam. Liq. 2, H225 Acute Tox. 4 (Oral), H302 Acute Tox. 3 (Dermal), H311 Acute Tox. 4 (Inhalation), H332 Eye Irrit. 2, H319
tetrahydrofuran (Component)	(CAS No) 109-99-9 (EC no) 203-726-8 (EC index no) 603-025-00-0	1	Flam. Liq. 2, H225 Acute Tox. 1 (Oral), H300 Eye Irrit. 2, H319 Carc. 2, H351 STOT SE 3, H335
methylmethacrylate (Component)	(CAS No) 80-62-6 (EC no) 201-297-1 (EC index no) 607-035-00-6	0.2	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Skin Sens. 1, H317 STOT SE 3, H335

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
hexachloroethane (Component)	(CAS No) 67-72-1 (EC no) 200-666-4	0.2	Carc. 2, H351 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
cyclohexanone (Component) substance with a Community workplace exposure limit	(CAS No) 108-94-1 (EC no) 203-631-1 (EC index no) 606-010-00-7	0.2	Flam. Liq. 3, H226 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332
1,4-dichloro-2-butene, trans- (Component)	(CAS No) 110-57-6 (EC no) 203-779-7 (EC index no) 602-073-00-X	0.2	Flam. Liq. 3, H226 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Skin Corr. 1B, H314 Carc. 1B, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
ethyl methacrylate (Component)	(CAS No) 97-63-2 (EC no) 202-597-5 (EC index no) 607-071-00-2	0.2	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 STOT SE 3, H335
methacrylonitrile (Component)	(CAS No) 126-98-7 (EC no) 204-817-5 (EC index no) 608-010-00-2	0.2	Flam. Liq. 2, H225 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331 Skin Sens. 1, H317
pentachloroethane (Component)	(CAS No) 76-01-7 (EC no) 200-925-1 (EC index no) 602-017-00-4	0.2	Carc. 2, H351 STOT RE 1, H372 Aquatic Chronic 2, H411
1,1,2-trichloro-1,2,2-trifluoroethane (Component)	(CAS No) 76-13-1 (EC no) 200-936-1	0.1	Aquatic Chronic 2, H411 Ozone
2-chloro-1,3-butadiene, inhibited (Component)	(CAS No) 126-99-8 (EC no) 204-818-0 (EC index no) 602-036-00-8	0.1	Flam. Liq. 2, H225 Acute Tox. 3 (Oral), H301 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Carc. 1B, H350 STOT SE 3, H335 STOT RE 2, H373
cyclohexane (Component) substance with a Community workplace exposure limit	(CAS No) 110-82-7 (EC no) 203-806-2 (EC index no) 601-017-00-1	0.02	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Name	Product identifier	Specific concentration limits	
tetrahydrofuran (Component)	(CAS No) 109-99-9 (EC no) 203-726-8 (EC index no) 603-025-00-0	(C >= 25) Eye Irrit. 2, H319 (C >= 25) STOT SE 3, H335	
1,4-dichloro-2-butene, trans- (Component)	(CAS No) 110-57-6 (EC no) 203-779-7 (EC index no) 602-073-00-X	(C >= 0.01) Carc. 1B, H350 (C >= 5) STOT SE 3, H335	
methacrylonitrile (Component)	(CAS No) 126-98-7 (EC no) 204-817-5 (EC index no) 608-010-00-2	(C >= 0.2) Skin Sens. 1, H317	
pentachloroethane (Component)	(CAS No) 76-01-7 (EC no) 200-925-1 (EC index no) 602-017-00-4	(0.2 <= C < 1) STOT RE 2, H373 (C >= 1) STOT RE 1, H372	

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. IF exposed or concerned: Get medical advice/attention.
First-aid measures after inhalation	: Allow victim to breathe fresh air. Allow the victim to rest.
First-aid measures after skin contact	: Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Immediately call a poison center or doctor/physician. Wash with plenty of soap and water. Wash contaminated clothing before reuse. Get medical advice/attention.
First-aid measures after eye contact	: Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.
First-aid measures after ingestion	: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Immediately call a poison center or doctor/physician.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation	: May cause an allergic skin reaction.
Symptoms/injuries after skin contact	: Repeated exposure to this material can result in absorption through skin causing significant health hazard. Harmful in contact with skin.

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Symptoms/injuries after ingestion : Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Highly flammable liquid and vapor.

Explosion hazard : May form flammable/explosive vapor-air mixture. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries. May form explosive peroxides.

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. DO NOT fight fire when fire reaches explosives. Evacuate area.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up in absorbent material. Collect spillage.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapors are flammable. Hazardous waste due to potential risk of explosion.

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. No open flames. No smoking. Use only non-sparking tools. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from sources of ignition - No smoking.

Hygiene measures : Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Gently wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment.

Storage conditions : Keep in fireproof place. Keep container tightly closed. Keep container tightly closed and in a well-ventilated place. Keep away from any flames or sparking source.

Incompatible products : Oxidizing agent.

Incompatible materials : Direct sunlight. Heat sources.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

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8.2. Exposure controls

- Appropriate engineering controls : Either local exhaust or general room ventilation is usually required.
Personal protective equipment : Avoid all unnecessary exposure. Gloves. Protective clothing. Protective goggles. Safety glasses.



- Hand protection : Wear chemically resistant protective gloves. Wear suitable gloves resistant to chemical penetration.
Eye protection : Chemical goggles or safety glasses. Safety glasses.
Skin and body protection : Wear chemically protective gloves, lab coat or apron to prevent prolonged or repeated skin contact.
Respiratory protection : Wear appropriate mask.
Other information : Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Liquid
Color : Colorless.
Odor : characteristic.
pH : No data available
Melting point : No data available
Freezing point : No data available
Boiling point : No data available
Flash point : No data available
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : Highly flammable liquid and vapor
Relative density : No data available
Solubility : No data available
Explosive properties : May form explosive peroxides.
Oxidizing properties : No data available
Explosion limits : No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Highly flammable liquid and vapor. May form flammable/explosive vapor-air mixture.

10.3. Possibility of hazardous reactions

Reacts vigorously with strong oxidizers and acids.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame. Heat. Sparks. Overheating.

10.5. Incompatible materials

Oxidizing agent.

10.6. Hazardous decomposition products

May release flammable gases. May form explosive peroxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Toxic if swallowed. Dermal: Harmful in contact with skin. Inhalation: Harmful if inhaled.

Custom VOA APPIX Mix	
ATE CLP (oral)	201.780 mg/kg body weight
ATE CLP (dermal)	1100.000 mg/kg body weight
ATE CLP (gases)	4500.000 ppmV/4h

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ATE CLP (vapors)	11.000 mg/l/4h
ATE CLP (dust, mist)	1.500 mg/l/4h
acetonitrile (75-05-8)	
LD50 oral rat	> 1327 mg/kg (Rat)
LD50 dermal rabbit	980 mg/kg (Rabbit)
LC50 inhalation rat (mg/l)	27 mg/l/4h (Rat)
LC50 inhalation rat (ppm)	16000 ppm/4h (Rat)
ATE CLP (oral)	500.000 mg/kg body weight
ATE CLP (dermal)	980.000 mg/kg body weight
ATE CLP (gases)	16000.000 ppmV/4h
ATE CLP (vapors)	11.000 mg/l/4h
ATE CLP (dust, mist)	1.500 mg/l/4h
2-chloro-1,3-butadiene, inhibited (126-99-8)	
LD50 oral rat	251 mg/kg (Rat)
LD50 dermal rabbit	2200 mg/kg (Rabbit)
LC50 inhalation rat (mg/l)	11.8 mg/l/4h (Rat)
ATE CLP (oral)	251.000 mg/kg body weight
ATE CLP (dermal)	2200.000 mg/kg body weight
ATE CLP (gases)	4500.000 ppmV/4h
ATE CLP (vapors)	11.800 mg/l/4h
ATE CLP (dust, mist)	1.500 mg/l/4h
cyclohexane (110-82-7)	
LD50 oral rat	> 12705 mg/kg (Rat; Equivalent or similar to OECD 401; Experimental value; >5000 mg/kg bodyweight; Rat)
LD50 dermal rabbit	> 2000 mg/kg body weight (Rabbit; Experimental value; Equivalent or similar to OECD 402)
LC50 inhalation rat (mg/l)	> 19.07 mg/l/4h (Rat; Experimental value)
LC50 inhalation rat (ppm)	> 5540 ppm/4h (Rat)
cyclohexanone (108-94-1)	
LD50 oral rat	1535 mg/kg (Rat; BASF test; Experimental value; 2650 mg/kg bodyweight; Rat)
ATE CLP (oral)	1535.000 mg/kg body weight
ATE CLP (gases)	4500.000 ppmV/4h
ATE CLP (vapors)	11.000 mg/l/4h
ATE CLP (dust, mist)	1.500 mg/l/4h
1,4-dichloro-2-butene, trans- (110-57-6)	
LC50 inhalation rat (mg/l)	0.45 mg/l/4h (Rat)
LC50 inhalation rat (ppm)	86 ppm/4h (Rat)
ATE CLP (oral)	100.000 mg/kg body weight
ATE CLP (dermal)	300.000 mg/kg body weight
ATE CLP (gases)	86.000 ppmV/4h
ATE CLP (vapors)	0.450 mg/l/4h
ATE CLP (dust, mist)	0.450 mg/l/4h
1,4-dioxane (123-91-1)	
LD50 oral rat	> 5000 mg/kg (Rat)
LD50 dermal rabbit	7600 mg/kg (Rabbit)
LC50 inhalation rat (mg/l)	51 mg/l/4h (Rat)
LC50 inhalation rat (ppm)	14250 ppm/4h (Rat)
ethyl methacrylate (97-63-2)	
LD50 oral rat	14800 mg/kg (Rat)
LD50 dermal rabbit	> 2000 mg/kg (Rabbit)
LC50 inhalation rat (mg/l)	38 mg/l/4h (Rat)
LC50 inhalation rat (ppm)	8300 ppm/4h (Rat)
ATE CLP (oral)	14800.000 mg/kg body weight
ATE CLP (gases)	8300.000 ppmV/4h
ATE CLP (vapors)	38.000 mg/l/4h
ATE CLP (dust, mist)	38.000 mg/l/4h
hexachloroethane (67-72-1)	
LD50 oral rat	4460 mg/kg (Rat)
LD50 dermal rabbit	32000 mg/kg (Rabbit)

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hexachloroethane (67-72-1)	
ATE CLP (oral)	4460.000 mg/kg body weight
ATE CLP (dermal)	32000.000 mg/kg body weight
methacrylonitrile (126-98-7)	
LD50 oral rat	64 - 73 mg/kg (Rat)
LD50 dermal rabbit	280 mg/kg (Rabbit)
LC50 inhalation rat (mg/l)	0.66 mg/l/4h (Rat)
LC50 inhalation rat (ppm)	328 ppm/4h (Rat)
ATE CLP (oral)	64.000 mg/kg body weight
ATE CLP (dermal)	280.000 mg/kg body weight
ATE CLP (gases)	328.000 ppmV/4h
ATE CLP (vapors)	0.660 mg/l/4h
ATE CLP (dust, mist)	0.660 mg/l/4h
methylmethacrylate (80-62-6)	
LD50 oral rat	> 6000 mg/kg (Rat; Equivalent or similar to OECD 401; Literature study; 7900 mg/kg bodyweight; Rat; Equivalent or similar to OECD 401; Weight of evidence; 8400 mg/kg bodyweight; Rat; Weight of evidence)
LD50 dermal rabbit	> 7550 mg/kg (Rabbit; Literature study; Equivalent or similar to OECD 402; >5000 mg/kg bodyweight; Rabbit; Experimental value)
LC50 inhalation rat (mg/l)	27.5 mg/l/4h (Rat; Literature study)
ATE CLP (vapors)	27.500 mg/l/4h
ATE CLP (dust, mist)	27.500 mg/l/4h
propionitrile (107-12-0)	
LD50 oral rat	39 mg/kg (Rat)
LD50 dermal rabbit	164 mg/kg (Rabbit)
LC50 inhalation rat (mg/l)	1.6 mg/l/4h (Rat)
LC50 inhalation rat (ppm)	730 ppm/4h (Rat)
ATE CLP (oral)	39.000 mg/kg body weight
ATE CLP (dermal)	164.000 mg/kg body weight
ATE CLP (gases)	730.000 ppmV/4h
ATE CLP (vapors)	1.600 mg/l/4h
ATE CLP (dust, mist)	1.600 mg/l/4h
tetrahydrofuran (109-99-9)	
LD50 oral rat	2.3 - 3.6 (Rat; OECD 401: Acute Oral Toxicity; Experimental value; 1650 mg/kg bodyweight; Rat; OECD 401: Acute Oral Toxicity; Experimental value)
LD50 dermal rat	> 2000 mg/kg body weight (Rat; Experimental value; OECD 402: Acute Dermal Toxicity)
LC50 inhalation rat (mg/l)	54 mg/l/4h (Rat; Literature study)
LC50 inhalation rat (ppm)	18200 ppm/4h (Rat; Literature study)
ATE CLP (oral)	2.300 mg/kg body weight
ATE CLP (gases)	18200.000 ppmV/4h
ATE CLP (vapors)	54.000 mg/l/4h
ATE CLP (dust, mist)	54.000 mg/l/4h
1,1,2-trichloro-1,2,2-trifluoroethane (76-13-1)	
LD50 oral rat	43000 mg/kg (Rat)
LD50 dermal rabbit	> 11000 mg/kg (Rabbit)
LC50 inhalation rat (mg/l)	300 mg/l/4h (Rat)
LC50 inhalation rat (ppm)	38500 ppm/4h (Rat)
ATE CLP (oral)	43000.000 mg/kg body weight
ATE CLP (gases)	38500.000 ppmV/4h
ATE CLP (vapors)	300.000 mg/l/4h
ATE CLP (dust, mist)	300.000 mg/l/4h
Methylene Chloride (75-09-2)	
LD50 oral rat	> 2000 mg/kg (Rat; Literature study)
LD50 dermal rabbit	> 2000 mg/kg (Rabbit; Literature study)
Skin corrosion/irritation	: Not classified Based on available data, the classification criteria are not met
Serious eye damage/irritation	: Not classified Based on available data, the classification criteria are not met
Respiratory or skin sensitization	: May cause an allergic skin reaction.

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Germ cell mutagenicity	: Not classified Based on available data, the classification criteria are not met
Carcinogenicity	: May cause cancer. May cause cancer
Reproductive toxicity	: Not classified Based on available data, the classification criteria are not met
Specific target organ toxicity (single exposure)	: Not classified Based on available data, the classification criteria are not met
Specific target organ toxicity (repeated exposure)	: May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	: Not classified Based on available data, the classification criteria are not met
Potential Adverse human health effects and symptoms	: Harmful in contact with skin. Toxic if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - air	: Dangerous for the ozone layer.
Ecology - water	: Harmful to aquatic life with long lasting effects.

acetonitrile (75-05-8)	
LC50 fish 1	1640 mg/l (LC50; Other; 96 h; Pimephales promelas; Flow-through system; Fresh water; Experimental value)
EC50 Daphnia 1	> 1000 mg/l (EC50; OECD 202: Daphnia sp. Acute Immobilisation Test; 48 h; Daphnia magna; Semi-static system; Fresh water; Experimental value)
Threshold limit algae 1	9696 mg/l (EC50; ISO 10253; 72 h; Phaeodactylum; Static system; Salt water; Experimental value)
Threshold limit algae 2	> 1000 mg/l (EC50; OECD 201: Alga, Growth Inhibition Test; 72 h; Pseudokirchneriella subcapitata; Static system; Fresh water; Experimental value)
2-chloro-1,3-butadiene, inhibited (126-99-8)	
LC50 fish 1	245 mg/l (LC50; 96 h; Lepomis macrochirus)
EC50 Daphnia 1	348 mg/l (EC50; 24 h)
Threshold limit algae 1	380 mg/l (EC50; 168 h)
cyclohexane (110-82-7)	
LC50 fish 1	4.53 mg/l (LC50; OECD 203: Fish, Acute Toxicity Test; 96 h; Pimephales promelas; Flow-through system; Fresh water; Experimental value)
EC50 Daphnia 1	0.9 mg/l (EC50; OECD 202: Daphnia sp. Acute Immobilisation Test; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)
Threshold limit algae 1	3.428 mg/l (EbC50; OECD 201: Alga, Growth Inhibition Test; 72 h; Selenastrum capricornutum)
Threshold limit algae 2	0.925 mg/l (NOEC; OECD 201: Alga, Growth Inhibition Test; 72 h; Selenastrum capricornutum)
cyclohexanone (108-94-1)	
LC50 fish 1	527 - 732 mg/l (LC50; US EPA; 96 h; Pimephales promelas; Flow-through system; Fresh water; Experimental value)
1,4-dioxane (123-91-1)	
EC50 Daphnia 1	8450 mg/l (EC50; 24 h)
LC50 fish 2	13000 mg/l (LC50; 96 h)
Threshold limit algae 2	5600 mg/l (EC0; 192 h)
hexachloroethane (67-72-1)	
EC50 Daphnia 1	1.4 mg/l (EC50)
LC50 fish 2	0.84 mg/l (LC50; 96 h)
Threshold limit algae 1	7.75 mg/l (EC50; 96 h)
methacrylonitrile (126-98-7)	
LC50 fish 1	100 - 1000 mg/l (LC50; 96 h)
methylmethacrylate (80-62-6)	
EC50 Daphnia 1	69 mg/l (EC50; EPA OTS 797.1300; 48 h; Daphnia magna; Flow-through system; Fresh water; Experimental value)
LC50 fish 2	191 mg/l (LC50; EPA 660/3 - 75/009; 96 h; Lepomis macrochirus; Static system; Fresh water; Experimental value)

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pentachloroethane (76-01-7)	
LC50 fish 1	7.0 mg/l (LC50; 96 h; Lepomis macrochirus)
EC50 other aquatic organisms 1	134 mg/l (96 h; Selenastrum capricornutum; Cell numbers)
propionitrile (107-12-0)	
LC50 fish 1	1520 mg/l (LC50; 96 h; Pimephales promelas)
tetrahydrofuran (109-99-9)	
LC50 fish 1	2160 mg/l (LC50; Equivalent or similar to OECD 203; 96 h; Pimephales promelas; Flow-through system; Fresh water; Experimental value)
Threshold limit algae 2	3700 mg/l (EC0; Other; 8 days; Scenedesmus quadricauda; Static system; Fresh water; Experimental value)
1,1,2-trichloro-1,2,2-trifluoroethane (76-13-1)	
EC50 Daphnia 1	71 mg/l (EC50; 48 h)
LC50 fish 2	7.4 mg/l (LC50; 96 h; Salmo gairdneri)
Methylene Chloride (75-09-2)	
LC50 fish 1	193 mg/l (LC50; 96 h; Pimephales promelas)
EC50 Daphnia 1	168.2 mg/l (EC50; 48 h)
12.2. Persistence and degradability	
Custom VOA APPIX Mix	
Persistence and degradability	May cause long-term adverse effects in the environment.
acetonitrile (75-05-8)	
Persistence and degradability	Readily biodegradable in water. No (test)data on mobility of the substance available.
Biochemical oxygen demand (BOD)	0.17 g O ₂ /g substance
ThOD	3.12 g O ₂ /g substance
BOD (% of ThOD)	0.055
2-chloro-1,3-butadiene, inhibited (126-99-8)	
Persistence and degradability	Not readily biodegradable in water. Ozonation in the air. Photolysis in the air. Photooxidation in the air.
cyclohexane (110-82-7)	
Persistence and degradability	Readily biodegradable in water. Non degradable in the soil. Low potential for adsorption in soil.
Biochemical oxygen demand (BOD)	0.22 g O ₂ /g substance
ThOD	3.425 g O ₂ /g substance
BOD (% of ThOD)	< 0.5 (Literature study)
cyclohexanone (108-94-1)	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Highly mobile in soil.
Biochemical oxygen demand (BOD)	1.232 g O ₂ /g substance
Chemical oxygen demand (COD)	2.605 g O ₂ /g substance
ThOD	2.605 g O ₂ /g substance
BOD (% of ThOD)	0.32 - 0.47 (Literature study)
1,4-dioxane (123-91-1)	
Persistence and degradability	Not readily biodegradable in water. Non degradable in the soil. Photooxidation in the air.
Biochemical oxygen demand (BOD)	0 g O ₂ /g substance
ThOD	1.8 g O ₂ /g substance
BOD (% of ThOD)	0
ethyl methacrylate (97-63-2)	
Persistence and degradability	Biodegradable in water.
hexachloroethane (67-72-1)	
Persistence and degradability	Not readily biodegradable in water.
methacrylonitrile (126-98-7)	
Persistence and degradability	Biodegradable in the soil.
methylmethacrylate (80-62-6)	
Persistence and degradability	Readily biodegradable in water. No (test)data on mobility of the substance available. Photolysis in the air.
Biochemical oxygen demand (BOD)	0.14 g O ₂ /g substance
ThOD	1.9 g O ₂ /g substance
BOD (% of ThOD)	0.073
pentachloroethane (76-01-7)	
Persistence and degradability	Not readily biodegradable in water.

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propionitrile (107-12-0)	
Persistence and degradability	Biodegradability in water: no data available.
tetrahydrofuran (109-99-9)	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Highly mobile in soil.
Chemical oxygen demand (COD)	1.855 g O ₂ /g substance
ThOD	2.44 g O ₂ /g substance
1,1,2-trichloro-1,2,2-trifluoroethane (76-13-1)	
Persistence and degradability	Not readily biodegradable in water. Biodegradable in the soil under anaerobic conditions.
Methylene Chloride (75-09-2)	
Persistence and degradability	Not readily biodegradable in water. Biodegradable in the soil.
12.3. Bioaccumulative potential	
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Bioaccumulative potential	Not established.
acetonitrile (75-05-8)	
BCF other aquatic organisms 1	3.162 (BCF; BCFWIN)
Log Pow	0.29 (Weight of evidence approach; Equivalent or similar to OECD 107; 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
2-chloro-1,3-butadiene, inhibited (126-99-8)	
Log Pow	0.57 - 2.2
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
cyclohexane (110-82-7)	
BCF fish 2	31 - 129 (BCF; 8 weeks; Cyprinus carpio)
Log Pow	3.44 (Experimental value; 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
cyclohexanone (108-94-1)	
BCF other aquatic organisms 1	2.4 (BCF)
Log Pow	0.86 (Experimental value; OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method; 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
1,4-dichloro-2-butene, trans- (110-57-6)	
Log Pow	2.11 - 2.6 (QSAR)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
1,4-dioxane (123-91-1)	
BCF fish 1	0.2 - 0.7 (BCF)
Log Pow	-0.27 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
ethyl methacrylate (97-63-2)	
BCF fish 1	5 - 18 (BCF)
Log Pow	1.94
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
hexachloroethane (67-72-1)	
BCF fish 1	1200 (BCF)
BCF fish 2	756 mg/l (BCF; 768 h)
Log Pow	3.34 - 4.62
Bioaccumulative potential	Potential for bioaccumulation (500 ≤ BCF ≤ 5000).
methacrylonitrile (126-98-7)	
Bioaccumulative potential	Not bioaccumulative.
methylmethacrylate (80-62-6)	
BCF fish 1	2.97 - 3.5 (BCF)
Log Pow	1.32 - 1.38 (Experimental value; OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method; 20 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
pentachloroethane (76-01-7)	
BCF fish 1	60 - 68 (BCF; 672 h)
BCF fish 2	67 (BCF; 336 h)
Log Pow	2.89 - 3.67 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

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propionitrile (107-12-0)	
Log Pow	0.16
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
tetrahydrofuran (109-99-9)	
Log Pow	0.45 (Experimental value; OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method; 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
1,1,2-trichloro-1,2,2-trifluoroethane (76-13-1)	
BCF fish 1	11 - 86 (BCF)
Log Pow	1.66 - 3.3 (Calculated)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
Methylene Chloride (75-09-2)	
BCF fish 1	2 - 40 (BCF)
Log Pow	1.25 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
12.4. Mobility in soil	
acetonitrile (75-05-8)	
Surface tension	0.029 N/m (20 °C)
cyclohexane (110-82-7)	
Surface tension	0.025 N/m (20 °C)
Log Koc	log Koc,Other; 2.89; QSAR; Koc; Other; 770; QSAR
cyclohexanone (108-94-1)	
Surface tension	0.034 N/m (20 °C)
Log Koc	log Koc, SRC PCKOCWIN v1.66; 1.18; Calculated value
1,4-dichloro-2-butene, trans- (110-57-6)	
Surface tension	0.024 N/m (20 °C)
Log Koc	log Koc, 2.33; Experimental value; Other isomer
1,4-dioxane (123-91-1)	
Surface tension	0.037 N/m (20 °C)
methacrylonitrile (126-98-7)	
Surface tension	0.024 N/m (20 °C)
methylmethacrylate (80-62-6)	
Surface tension	0.028 N/m (20 °C)
propionitrile (107-12-0)	
Surface tension	0.027 N/m (25 °C)
tetrahydrofuran (109-99-9)	
Surface tension	0.028 N/m
Log Koc	log Koc, 1.26 - 1.37; Experimental value
1,1,2-trichloro-1,2,2-trifluoroethane (76-13-1)	
Surface tension	0.023 N/m
Methylene Chloride (75-09-2)	
Surface tension	0.028 N/m (20 °C)
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Additional information : Avoid release to the environment

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Additional information : Handle empty containers with care because residual vapors are flammable. Hazardous waste due to potential risk of explosion.

Ecology - waste materials : Avoid release to the environment. Hazardous waste due to toxicity.

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SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : 1992
UN-No.(IATA) : 1992
UN-No. (IMDG) : 1992
UN-No.(ADN) : 1992

14.2. UN proper shipping name

Proper Shipping Name (ADR) : FLAMMABLE LIQUID, TOXIC, N.O.S.
Proper Shipping Name (IATA) : Flammable liquid, toxic, n.o.s.
Proper Shipping Name (IMDG) : FLAMMABLE LIQUID, TOXIC, N.O.S.
Proper Shipping Name (ADN) : FLAMMABLE LIQUID, TOXIC, N.O.S.
Transport document description (ADR) : UN 1992 FLAMMABLE LIQUID, TOXIC, N.O.S., 3 (6.1), II, (D/E)

14.3. Packing group

Class (ADR) : 3
Classification code (ADR) : FT1
Class (IATA) : 3
Class (IMDG) : 3
Class (ADN) : 3
Classification code (ADN) : FT1
Subsidiary risks (ADR) : 6.1
Subsidiary risks (IMDG) : 6.1
Hazard labels (ADR) : 3, 6.1



Hazard labels (IATA) : 3, 6.1



Hazard labels (IMDG) : 3, 6.1



Hazard labels (ADN) : 3, 6.1

14.4. Packing group

Packing group (ADR) : II
Packing group (IATA) : II
Packing group (IMDG) : II
Packing group (ADN) : II

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

14.6.1. Overland transport

Hazard identification number (Kemler No.) : 336
Classification code (ADR) : FT1
Orange plates :



Special provision (ADR) : 274
Transport category (ADR) : 2

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Tunnel restriction code (ADR) : D/E
Limited quantities (ADR) : 1I
Excepted quantities (ADR) : E2

14.6.2. Transport by sea

Special provision (IMDG) : 274
Limited quantities (IMDG) : 1 L
Excepted quantities (IMDG) : E2
Packing instructions (IMDG) : P001
IBC packing instructions (IMDG) : IBC02
Tank instructions (IMDG) : T7
Tank special provisions (IMDG) : TP2, TP13
EmS-No. (Fire) : F-E
EmS-No. (Spillage) : S-D
Stowage category (IMDG) : B

14.6.3. Air transport

CAO packing instructions (IATA) : 364
CAO max net quantity (IATA) : 60L
PCA packing instructions (IATA) : 352
PCA Limited quantities (IATA) : Y341
PCA limited quantity max net quantity (IATA) : 1L
PCA max net quantity (IATA) : 1L
PCA Excepted quantities (IATA) : E2
Special provision (IATA) : A3
ERG code (IATA) : 3HP

14.6.4. Inland waterway transport

Special provision (ADN) : 274, 802
Limited quantities (ADN) : 1 L
Excepted quantities (ADN) : E2
Carriage permitted (ADN) : T
Equipment required (ADN) : PP, EP, EX, TOX, A
Ventilation (ADN) : VE01, VE02
Number of blue cones/lights (ADN) : 2
Carriage prohibited (ADN) : No

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

Contains no substances with Annex XVII restrictions
Contains no REACH candidate substance
Contains no REACH Annex XIV substances.

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information : None.

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